



Planning Commission Working Group Meeting #4

July 13, 2020

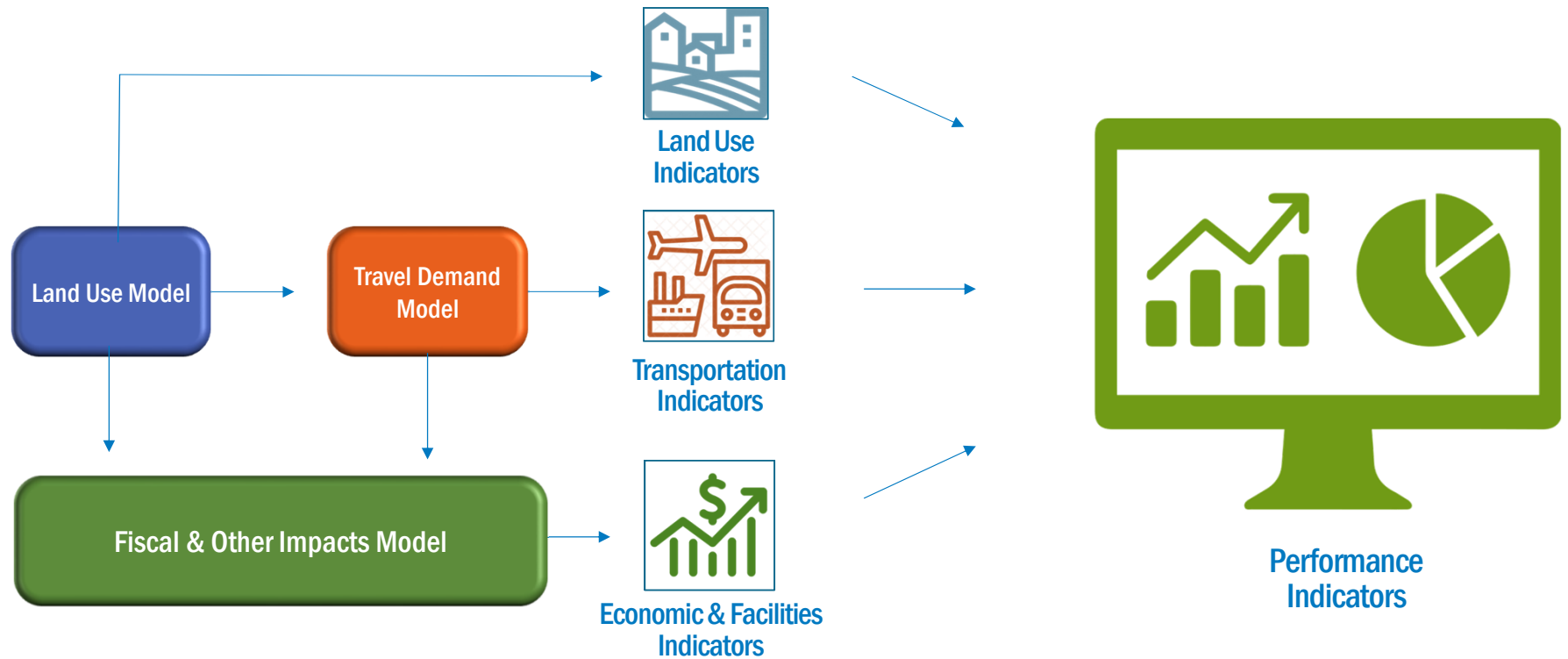


Outline

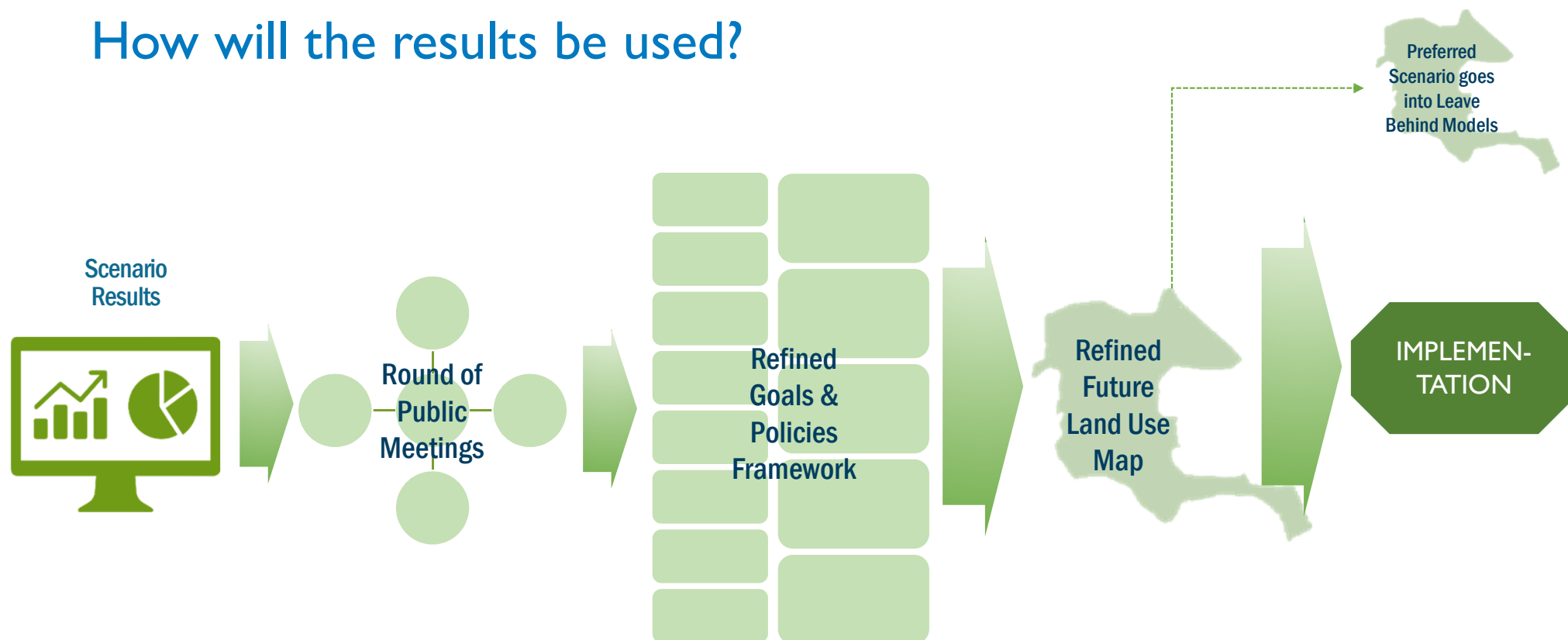
- Modeling Overview
- Scenario Growth Patterns
- Scenario Results:
 - Fiscal/Facility Model Results
 - Travel Demand Model Results
 - Land Use Model Results
- Conclusions & Next Steps

Modeling Overview

Modeling Overview



How will the results be used?



Ensuring that we are working toward the future we want!

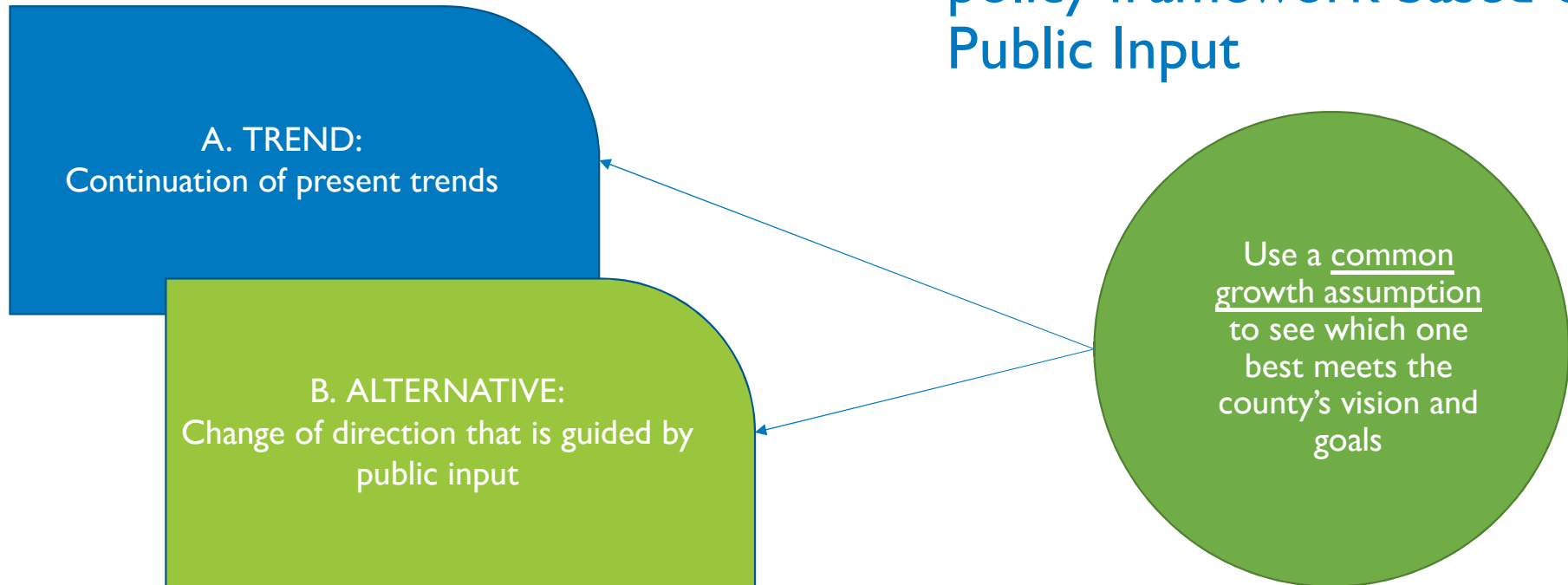
The Question to Test in the Scenario Planning Process:

- What are the implications of different land use and related policy directions on the fiscal health, environmental quality, and quality of life over the next 25 years?



Possible Scenarios to Answer the Question:

- A. Test the current trends in land use and development
- B. Test an alternative land use policy framework based on Public Input



Scenario Narratives

A. TREND SCENARIO

Current land use trends and development patterns continue, including dispersed single-family development and retail centers. Protection of rural areas is encouraged but some level of development outside the PSA continues.

Economy:	Predominantly service sector, tourism, and retail
Open and Rural Land:	Continued pattern of small scale residential subdivisions in rural lands
Residential:	Largely low-density, single-family residential, with a smaller proportion of townhouse or attached residential and few, if any, higher-density and mixed use communities
Commercial:	A mix of small retail developments serving resident needs and larger, regional commercial retail or industrial developments
Mixed Use:	Limited new mixed use development
Redevelopment:	Little or no redevelopment – primarily new development on vacant land
Transportation:	Little additional bike/pedestrian and transit network and continued reliance on auto travel

B. ALTERNATIVE SCENARIO

Greater protection for rural lands, focused on rural and agricultural uses outside of the PSA. More focus on infill, redevelopment, and economic development at higher densities in the PSA but in concert with existing community character.

Economy:	Diversified employment opportunities including technology, office, and advanced manufacturing to balance existing service and tourism economies
Open and Rural Land:	High levels of rural and agricultural preservation outside of the existing PSA with primarily rural and agricultural uses in rural lands
Residential:	Directed into the PSA, with more medium and higher-density, and mixed-use residential development that makes walking, biking, and transit possible and provides more housing opportunities for all income levels
Commercial:	A wide range of mixed commercial uses provide for local shopping/service needs as well as diversified employment
Mixed Use:	Greater share of mixed-use development makes walking, biking, and transit possible
Redevelopment:	More redevelopment and infill within the existing PSA to reduce rural area development pressure
Transportation:	Relatively high options for bike/pedestrian and transit travel with improved multimodal infrastructure

Control Totals Used in the Models

	YEAR	POPULATION	EMPLOYMENT
From County parcel records: →	2018	76,778	30,696
From the HRTPO Regional Model: →	2045	120,741	45,921

Notes:

- These numbers do not represent a goal or target for growth – they are just a standard increment of growth to allow scientific testing of alternative policies under possible future conditions

Modeling Overview

Land Use:

- Current conditions based on county datasets
- Future pop/emp based on HRPDC forecast for 2045
- Control totals for each Place Type based on scenario narratives were used to allocate people and jobs to parcels throughout the county

Transportation:

- Stand-alone county model derived from regional model
- Used HRTPO regional data for Trend Scenario
- Used Land Use model outputs for Alternative Scenarios

Fiscal/Other:

- Used 2020 budget year for current conditions
- Use Land Use model outputs for future conditions
- Divided County into subareas to analyze impacts
- Used constant Levels of Services across Scenarios to fairly compare outputs

Scenario Performance Indicators derived from Public Input Themes (partial list)

Nature

- Impacts of development on watersheds
- Proximity of developed land to areas of environmental protection
- Levels of automobile emissions
- Water use

Community Character

- Amount of rural land consumed by development
- Amount of development on sensitive lands or prime agricultural lands
- Proximity of development to cultural/historic resources
- Level of freight traffic on secondary streets

Affordable Housing

- Diversity of new housing types
- Housing near bus/walking networks
- Net new infill housing
- Distance to transit from new housing development

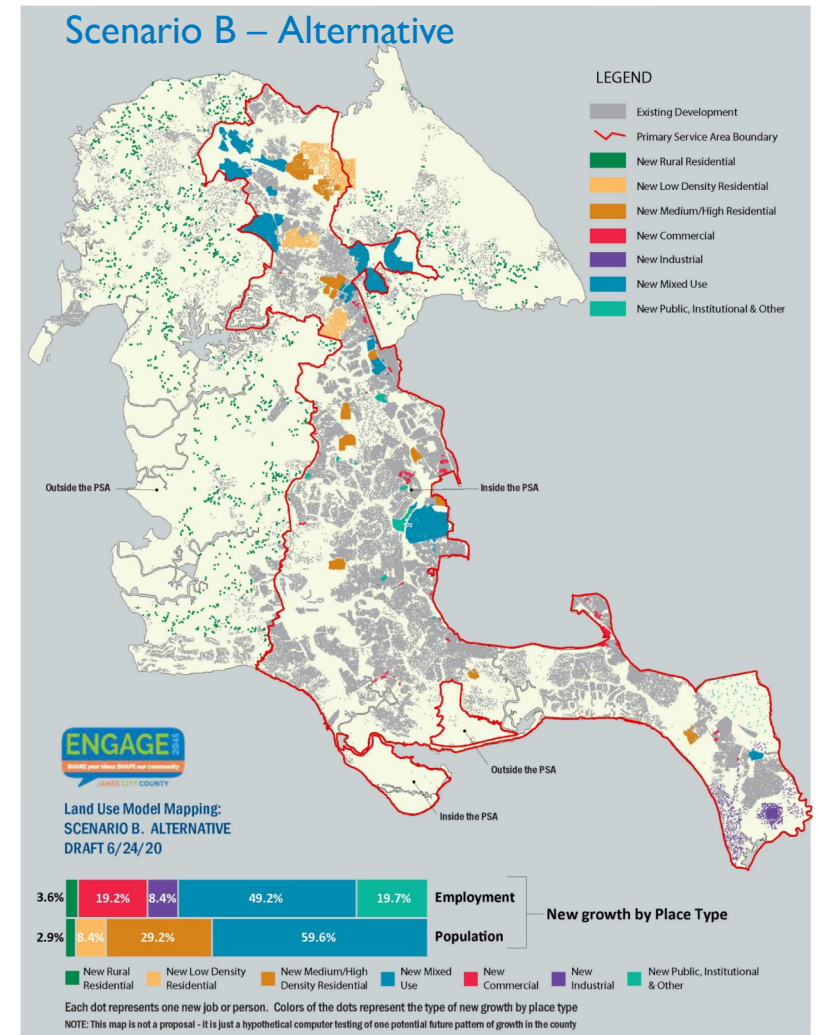
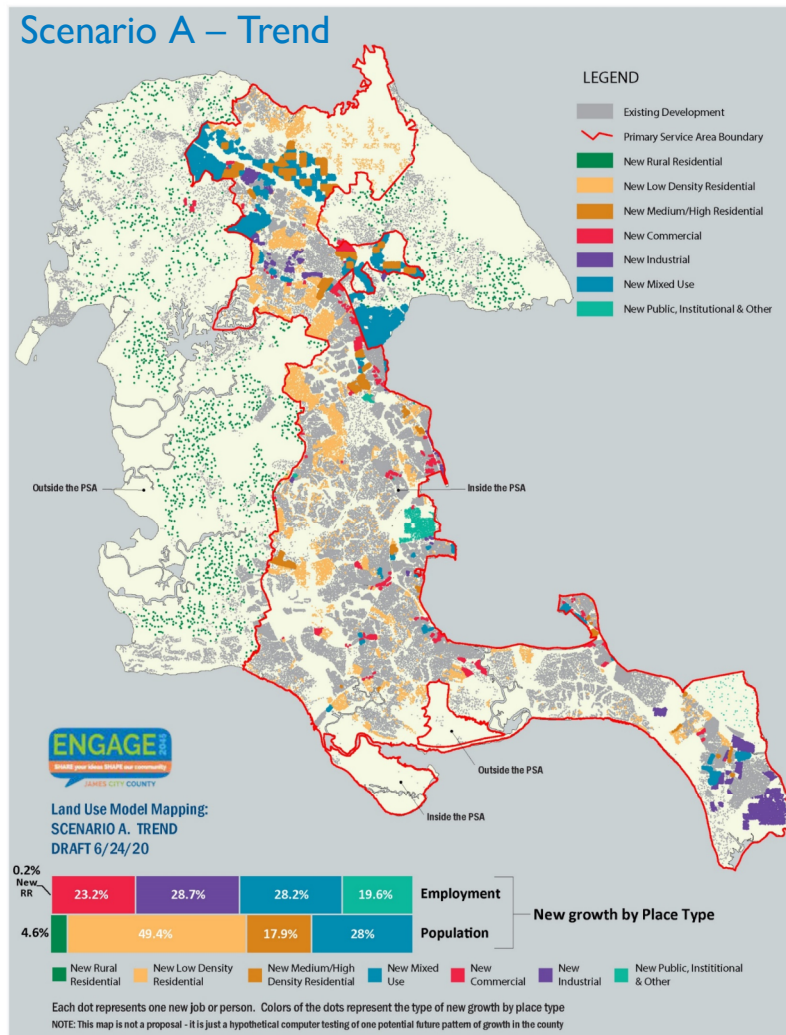
Economic Development

- Amount of jobs in mixed use place types
- Distance to existing employment areas
- Density of new employment areas
- Capital/Operating expenses compared to Revenues

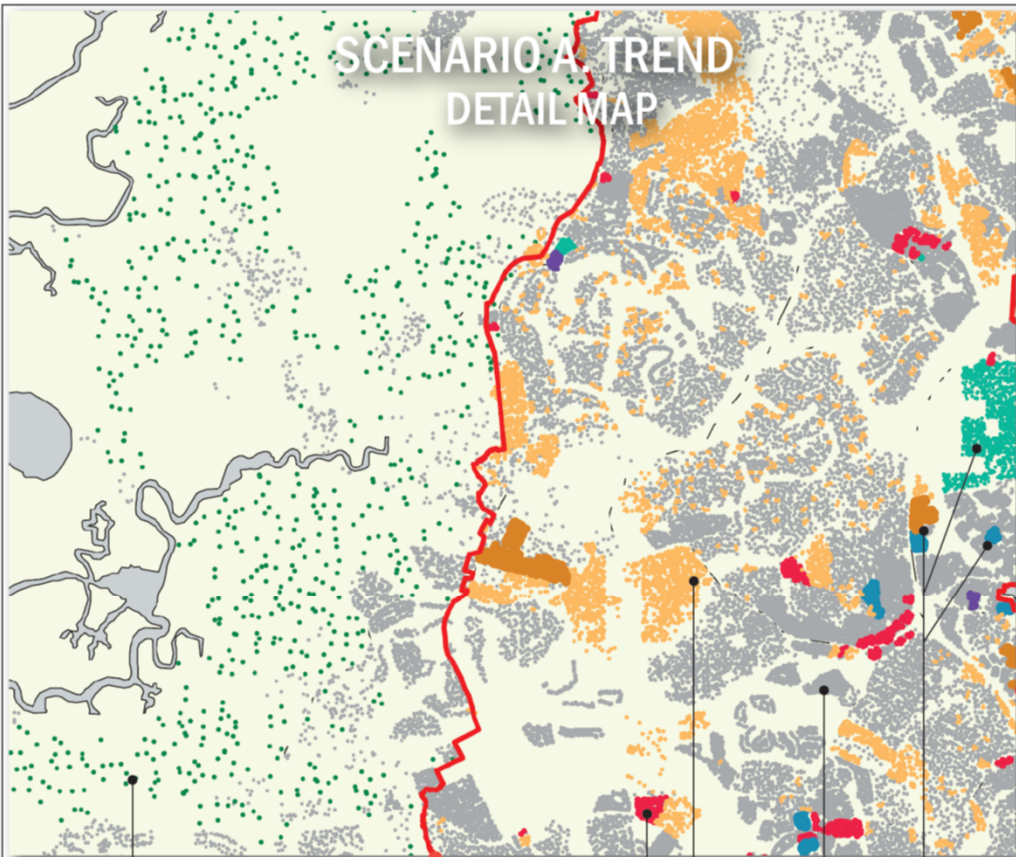
Quality of Life

- Change in travel times and congestion on roadways
- Proximity of development to parks and transit
- Population within walking distance of schools

Scenario Growth Patterns



SCENARIO A. TREND DETAIL MAP



Rural residential growth (green dots) outside the PSA

Outside PSA - planned for farming, forestry & natural areas
Inside PSA - planned for public services & facilities

Primary Service Area (PSA) line

Dispersed single family residential growth (yellow dots)

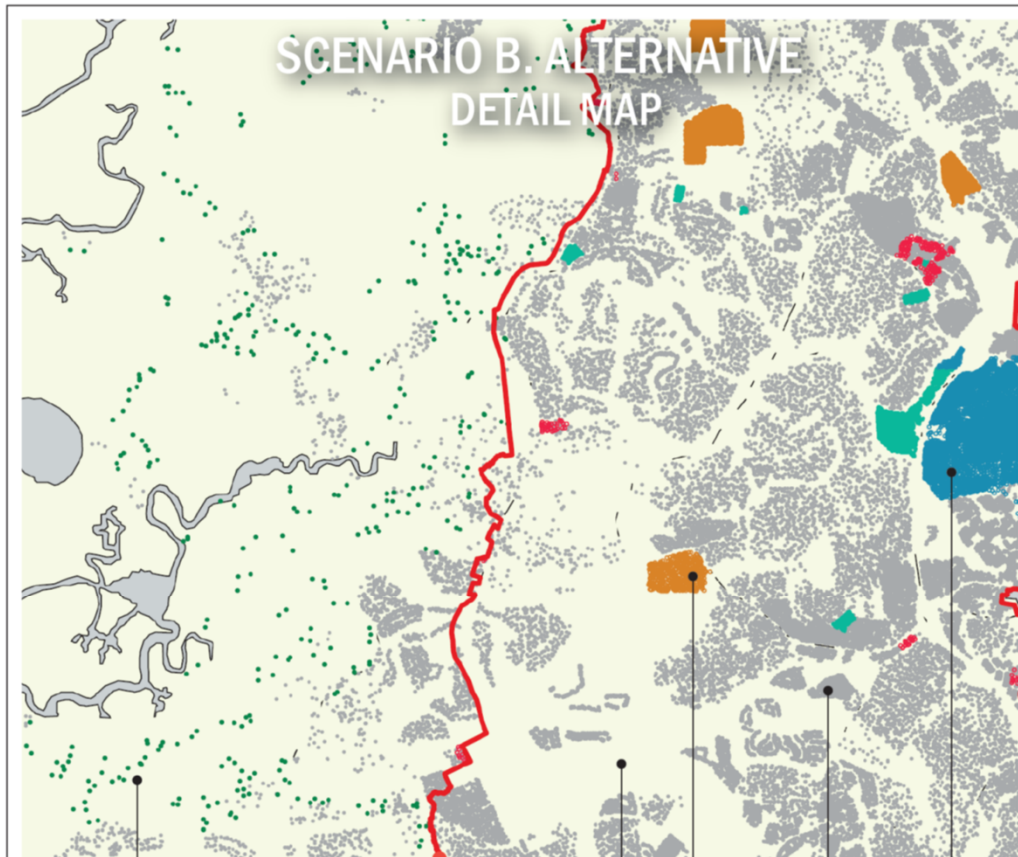
Dispersed commercial growth (red dots)

Some small areas of medium/high density residential growth (brown dots), mixed use (blue dots) or public/institutional (aqua dots)

Existing development (grey dots)

Each dot represents one new job or person. Colors of the dots represent the type of new growth by place type
NOTE: This map is not a proposal - it is just a hypothetical computer testing of one potential future pattern of growth in the county

SCENARIO B. ALTERNATIVE DETAIL MAP



Rural residential growth (green dots) outside the PSA

Outside PSA - planned for farming, forestry & natural areas
Inside PSA - planned for public services & facilities

Primary Service Area (PSA) line

Some concentrated areas of medium to higher density residential growth

Extensive undeveloped areas (light green color)

Existing development (grey dots)

Most new growth concentrated in mixed use place types (blue dots)

Each dot represents one new job or person. Colors of the dots represent the type of new growth by place type
NOTE: This map is not a proposal - it is just a hypothetical computer testing of one potential future pattern of growth in the county

Fiscal Impact Model Summary

Key Assumptions and Approach

- Scenario control totals are used to test fiscal impacts between different land use patterns
- Comparisons between the scenarios are key, rather than absolute dollar amounts
- FY20 Adopted Budget is used to establish current levels of service
- Current dollars are used throughout (revenues and costs are not inflated)
- General Fund, Capital Projects, Other Funds, and WJCC Schools (operations and capital costs) are modeled; JCSA is not included in the results
- Total WJCC Schools revenues and costs are modeled (not just County-funded portion)
- Property values are modeled by geographic area (Fiscal Analysis Zones (FAZ))
- Police and Fire/EMS costs are projected using calls for service data (linked to land use)
- Some infrastructure is modeled by geographic area (Schools; Fire/EMS; Parks)
- Capital costs are assumed to be debt financed (principal and interest costs are included)
- Transportation capital costs are not yet included; pending results from simultaneous transportation modeling
- Results herein are typically shown as (a) cumulative (25-year aggregated totals) and (b) stabilized year (annual outputs in year 25 of the projection period)

Fiscal Analysis Zones (FAZ)

Four areas used:

- North
- Central
- South
- Outside the PSA



Scenario Control Totals by FAZ

Scenario 1: Virtual Future

Housing Units	North	Central	South	Outside	Total
SFD	4,728	3,203	1,218	924	10,073
SFA	2,522	365	187	545	3,620
MF	3,229	246	149	908	4,533
Total	10,479	3,814	1,554	2,378	18,225
Population	24,433	9,333	3,744	5,606	43,116
Nonresidential Sq. Ft.					
Retail	1,596,680	1,050,978	686,582	336,296	3,670,537
Office	839,265	901,443	421,603	206,757	2,369,068
Industrial	1,413,869	537,877	4,121,180	141,684	6,214,610
Other	171,662	271,780	83,706	46,497	573,644
Total	4,021,477	2,762,077	5,313,071	731,234	12,827,859

Scenario 2: Alternative Future

Housing Units	North	Central	South	Outside	Total
SFD	2,139	472	75	612	3,299
SFA	4,086	1,639	148	12	5,885
MF	6,164	3,332	183	2	9,680
Total	12,389	5,443	406	626	18,864
Population	28,333	12,113	943	1,729	43,117
Nonresidential Sq. Ft.					
Retail	1,963,779	1,682,355	476,045	77,611	4,199,790
Office	1,262,264	1,298,580	205,270	51,006	2,817,120
Industrial	485,053	428,302	1,751,560	356,548	3,021,463
Other	254,016	349,172	58,301	88,917	750,406
Total	3,965,112	3,758,409	2,491,176	574,082	10,788,780

Property Value Assumptions

	North FAZ	Central FAZ	South FAZ	Outside PSA FAZ
Residential (per Unit)				
Single Family Detached	\$330,000	\$430,000	\$520,000	\$620,000
Single Family Attached	\$200,000	\$260,000	\$270,000	\$290,000
Multifamily	\$115,000	\$115,000	\$115,000	\$115,000
Nonresidential (per Sq. Ft.)				
Retail	\$128	\$181	\$151	\$93
Office	\$103	\$154	\$151	\$93
Industrial	\$74	\$87	\$57	\$62
Other/Institutional (Tax Exempt)	\$0	\$0	\$0	\$0

Source: James City County Assessor database; residential units reflect construction within the past 10 years except for South FAZ, which reflects 20 years. For nonresidential, data reflect construction within past 20 years, except for Outside PSA FAZ, which reflects all properties.

Student Generation Rates

Enrollment from James City County (2019)

	<u>Elementary</u>	<u>Middle</u>	<u>High</u>	<u>Total</u>
SFD	3,769	1,998	2,959	8,726
SFA	527	253	320	1,100
MF	482	189	226	897
Total in Housing Units	4,778	2,440	3,505	10,723
Other	31	12	12	55
Grand Total	4,809	2,452	3,517	10,778

James City County Housing Units (2019)

SFD	24,168
SFA	5,799
MF	6,225
Total Housing Units	36,192

SGR	<u>Elementary</u>	<u>Middle</u>	<u>High</u>	<u>Total</u>
SFD	0.156	0.083	0.122	0.361
SFA	0.091	0.044	0.055	0.190
MF	0.077	0.030	0.036	0.144
Total Housing Units	0.132	0.067	0.097	0.296

Source: Enrollment data from James City County; housing units from JCC parcel data via EPR, Inc.

Scenario Summary

RESIDENTIAL

SINGLE FAMILY DETACHED
SINGLE FAMILY ATTACHED
MULTIFAMILY
TOTAL UNITS

POPULATION

ENROLLMENT FROM JCC

NONRESIDENTIAL:

RETAIL SF
OFFICE SF
INDUSTRIAL SF
INSTITUTIONAL SF
TOTAL NONRES SF

JOBS

CUMUL RESID. PROPERTY VALUE
CUMUL NONRESID. PROPERTY VALUE
CUMULATIVE PROPERTY VALUE

Scenario 1: VIRTUAL FUTURE	
[25-Year Net New Growth]	
	10,073
	3,620
	4,533
	18,225

	43,116
	4,977

	3,670,537
	2,369,068
	6,214,610
	573,644
	12,827,859

	15,513
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	\$5,472,815,250
	\$1,232,821,844
	\$6,705,637,094

Scenario 2: ALTERNATIVE FUTURE	
[25-Year Net New Growth]	
	3,299
	5,885
	9,680
	18,864

	43,117
	3,702

	4,199,790
	2,817,120
	3,021,463
	750,406
	10,788,780

	15,548
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	\$3,727,685,750
	\$1,195,805,570
	\$4,923,491,320

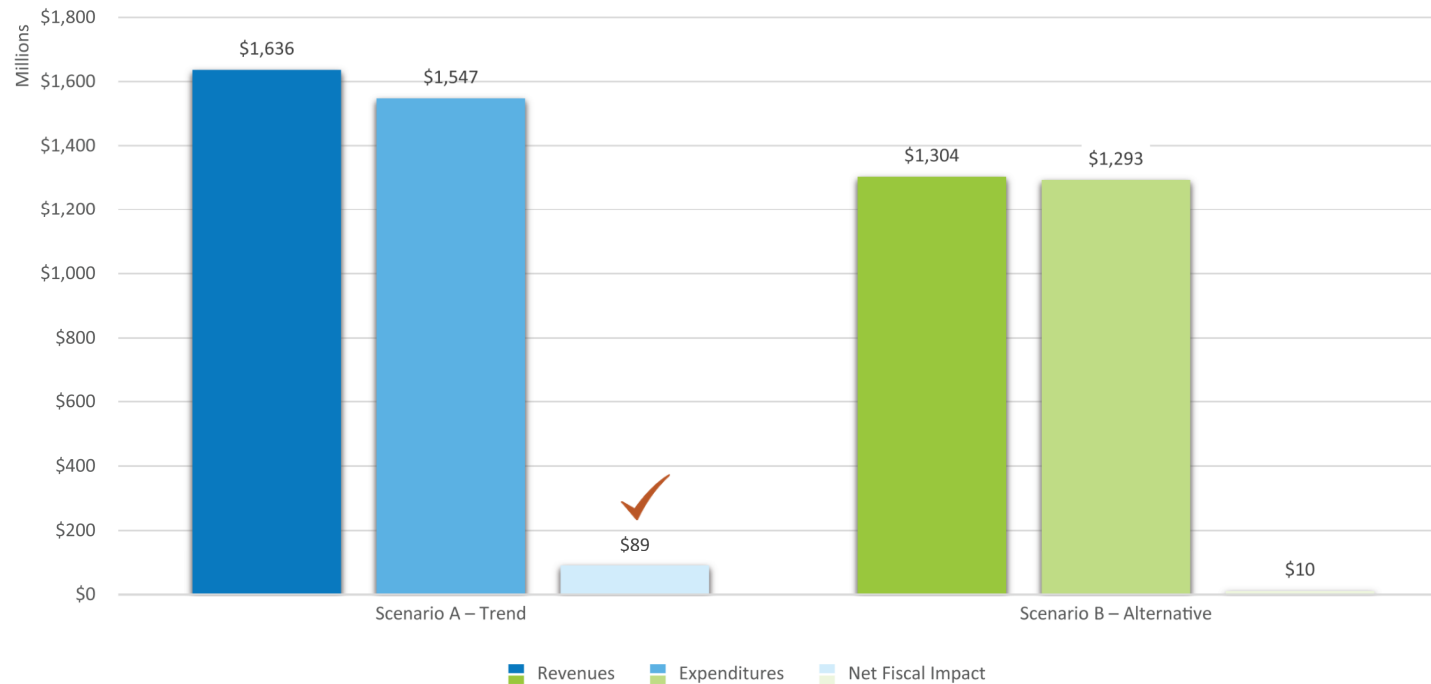
Fiscal Impact Model Performance Indicators

Economic Development:

- Cumulative (25-Year) Net Fiscal Impacts
- Stabilized Year Net Fiscal Impacts
- Annual Net Fiscal Impacts (All Funds)
- Revenues to Costs
- Annual Operating & Capital Expenditures Compared to Revenues
- Net New FTEs per 1,000 Persons

Fiscal Impact Results

Cumulative (25-Year) Net Fiscal Impacts James City County Fiscal Impact Analysis



✓ Indicates scenario closer to desired results (from public input)



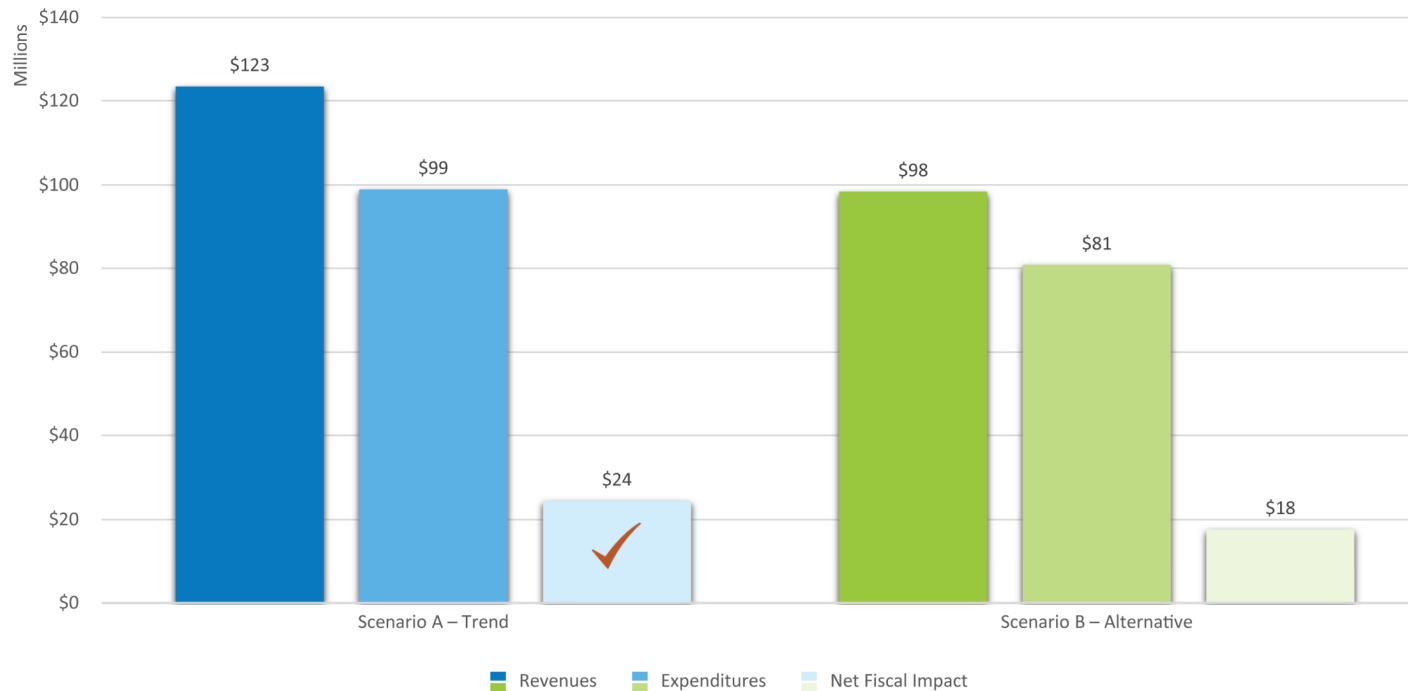
Indicates relatively equal scenario results



Indicates results without conclusions from public input

Fiscal Impact Results

Stabilized Year Net Fiscal Impacts James City County Fiscal Impact Analysis



✓ Indicates scenario closer to desired results (from public input)



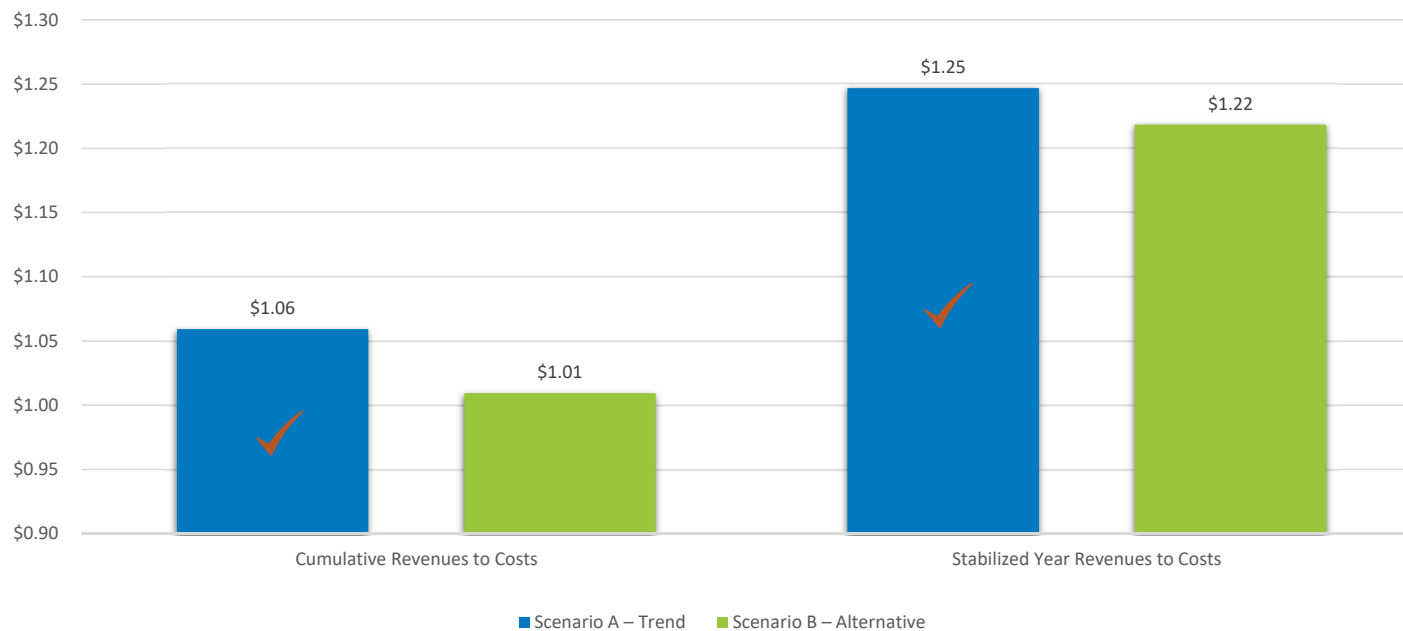
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Fiscal Impact Results

Revenues to Costs Comparison – Cumulative return of revenue for each \$1.00 in costs



✓ Indicates scenario closer to desired results (from public input)



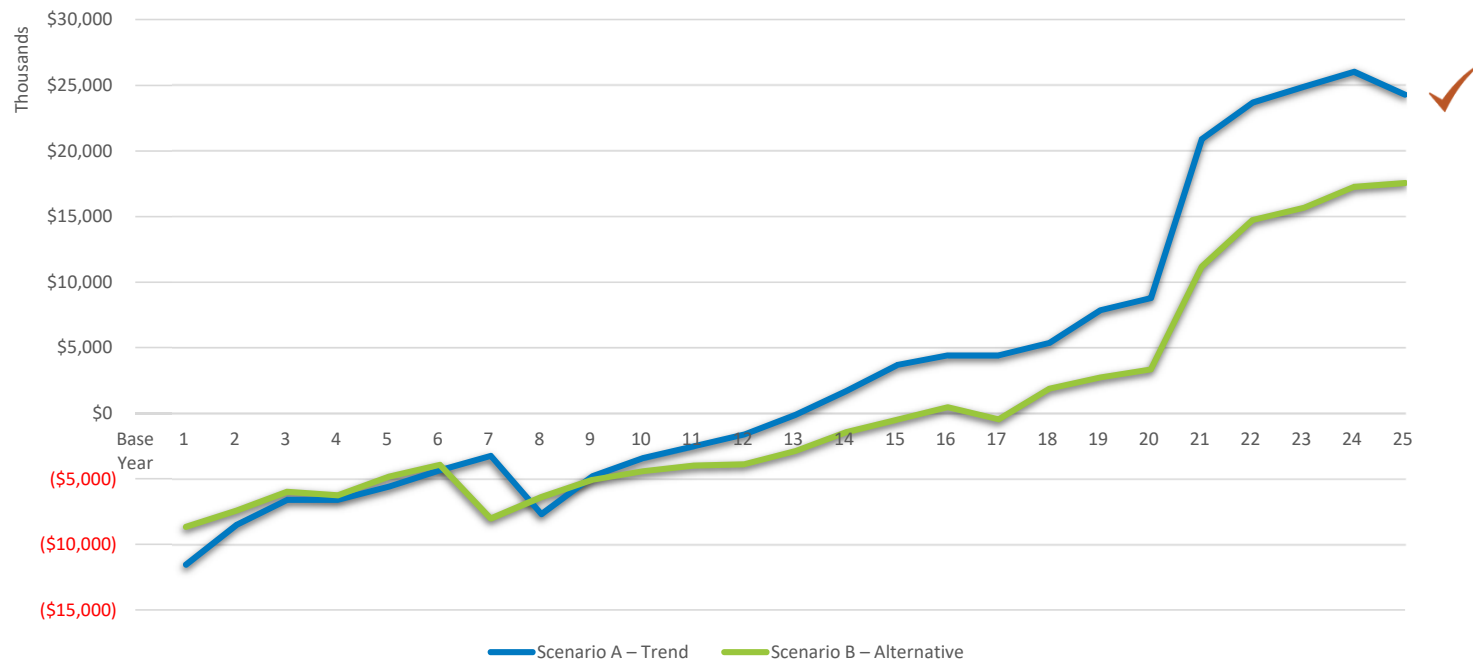
Indicates relatively equal scenario results



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Fiscal Impact Results

Annual Net Fiscal Impacts (All Funds)



Indicates scenario closer to desired results (from public input)



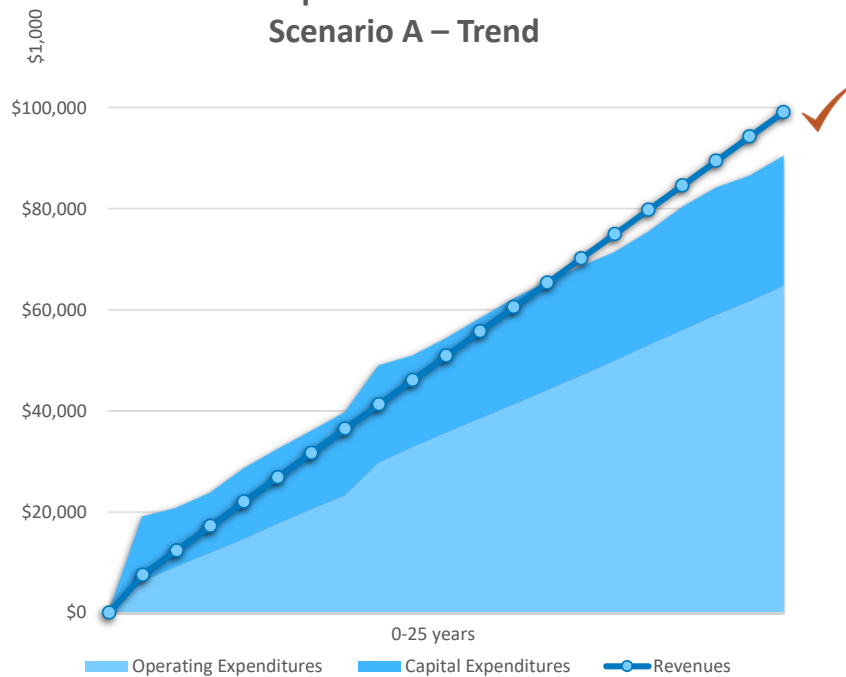
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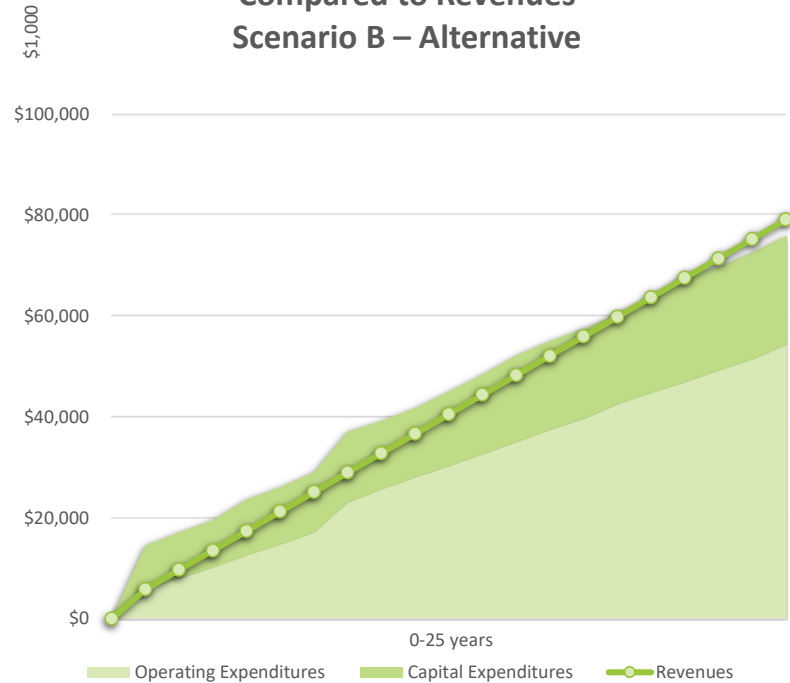
Indicates results without conclusions from public input

Fiscal Impact Results

Annual Operating & Capital Expenditures
Compared to Revenues
Scenario A – Trend



Annual Operating & Capital Expenditures
Compared to Revenues
Scenario B – Alternative



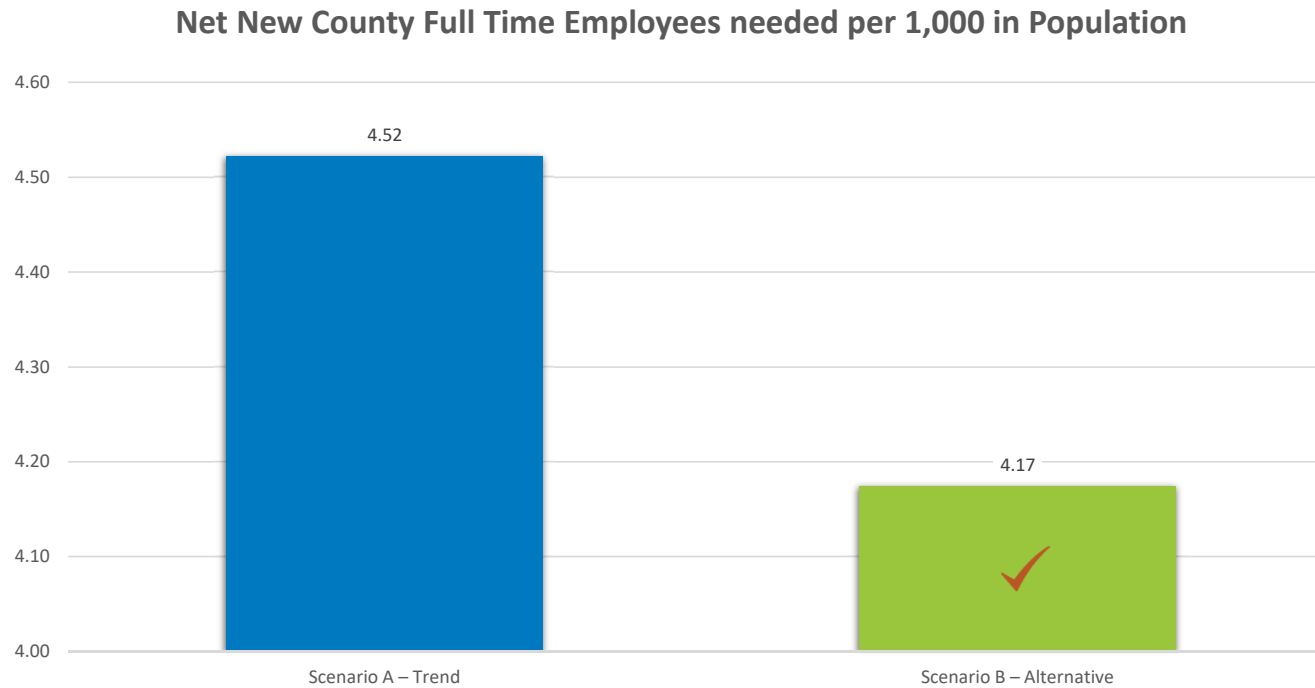
✓ Indicates scenario closer to desired results (from public input)



Indicates relatively equal scenario results

— — — Indicates results without conclusions from public input

Net New FTEs per 1,000 Population



✓ Indicates scenario closer to desired results (from public input)



Indicates relatively equal scenario results



Indicates results without conclusions from public input

Findings

- Both scenarios generate sufficient revenue to cover expenditures
- Scenario A generates both higher revenues and costs due to the type and location of development
- Scenario B projects fewer students—and lower school costs—due to housing type distribution
- Scenario B exhibits cost savings in location-based facilities (schools and fire stations)
- Scenario B results in a need for fewer new County positions than Scenario A serving the same population

REVENUES AND EXPENDITURES DETAIL

Revenue Summaries

- 25-Year Cumulative Total

Cumulative Revenue Summary - Scenario Comparisons
James City County Fiscal Impact Model

Category	SCENARIO			
	Scenario 1: VIRTUAL FUTURE	%	Scenario 2: ALTERNATIVE FUTURE	%
GENERAL FUND REVENUES	\$1,353,311,976	83%	\$1,091,365,864	84%
WJCC SCHOOLS REVENUES (NON-COUNTY TAXES)	\$277,341,757	17%	\$206,332,919	16%
OTHER FUNDS REVENUES	\$5,798,661	0%	\$5,802,198	0%
CAPITAL REVENUE	\$0	0%	\$0	0%
TOTAL	\$1,636,452,395	100%	\$1,303,500,981	100%

- Stabilized Year (Annual)

Stabilized Year Revenue Summary - Scenario Comparisons
James City County Fiscal Impact Model

Category	SCENARIO			
	Scenario 1: VIRTUAL FUTURE	%	Scenario 2: ALTERNATIVE FUTURE	%
GENERAL FUND REVENUES	\$101,602,833	82%	\$82,117,045	83%
WJCC SCHOOLS REVENUES (NON-COUNTY TAXES)	\$21,334,181	17%	\$15,871,963	16%
OTHER FUNDS REVENUES	\$446,051	0%	\$446,323	0%
CAPITAL REVENUE	\$0	0%	\$0	0%
TOTAL	\$123,383,065	100%	\$98,435,331	100%

Revenue Detail: 25-Year Cumulative Total

Cumulative Revenue Detail - Scenario Comparisons

James City County Fiscal Impact Model

Category	SCENARIO			
	Scenario 1: VIRTUAL FUTURE	%	Scenario 2: ALTERNATIVE FUTURE	%
GENERAL FUND				
General Property Taxes	\$896,577,471	66%	\$638,770,745	59%
Other Local Taxes	\$233,938,591	17%	\$239,857,778	22%
Licenses, Permits & Fees	\$74,719,237	6%	\$67,421,526	6%
Fines & Forfeitures	\$1,533,631	0%	\$1,533,653	0%
Use of Money & Prop	\$0	0%	\$0	0%
Commonwealth	\$93,070,916	7%	\$93,072,264	9%
Federal Government	\$0	0%	\$0	0%
Charges for Services	\$53,472,130	4%	\$50,709,897	5%
Miscellaneous	\$0	0%	\$0	0%
TOTAL GENERAL FUND	\$1,353,311,976	100%	\$1,091,365,864	100%
SCHOOLS REVENUES (NON-COUNTY TAXES)	\$277,341,757		\$206,332,919	
OTHER FUNDS REVENUES	\$5,798,661		\$5,802,198	
GRAND TOTAL REVENUES	\$1,636,452,395		\$1,303,500,981	

Revenue Summary: Stabilized Year (Annual)

Stabilized Year Revenue Detail - Scenario Comparisons

James City County Fiscal Impact Model

Category	SCENARIO			
	Scenario 1: VIRTUAL FUTURE	%	Scenario 2: ALTERNATIVE FUTURE	%
GENERAL FUND				
General Property Taxes	\$68,967,498	68%	\$49,136,211	60%
Other Local Taxes	\$16,454,117	16%	\$17,319,030	21%
Licenses, Permits & Fees	\$4,790,705	5%	\$4,483,664	5%
Fines & Forfeitures	\$117,972	0%	\$117,973	0%
Use of Money & Prop	\$0	0%	\$0	0%
Commonwealth	\$7,159,301	7%	\$7,159,405	9%
Federal Government	\$0	0%	\$0	0%
Charges for Services	\$4,113,241	4%	\$3,900,761	5%
Miscellaneous	\$0	0%	\$0	0%
TOTAL GENERAL FUND	\$101,602,833	100%	\$82,117,045	100%
SCHOOLS REVENUES (NON-COUNTY TAXES)	\$21,334,181		\$15,871,963	
OTHER FUNDS REVENUES	\$446,051		\$446,323	
GRAND TOTAL REVENUES	\$123,383,065		\$98,435,331	

Operating Expenditure Summaries

- 25-Year Cumulative Total

Cumulative Expenditures Summary - Scenario Comparisons

James City County Fiscal Impact Model

Category	SCENARIO			
	Scenario 1: VIRTUAL FUTURE	%	Scenario 2: ALTERNATIVE FUTURE	%
GENERAL FUND EXPENDITURES	\$338,740,219	22%	\$348,422,486	27%
TOTAL WJCC SCHOOLS OPERATING EXPENDITURES	\$726,532,809	47%	\$541,679,986	42%
OTHER FUNDS EXPENDITURES	\$25,952,902	2%	\$25,953,278	2%
CAPITAL EXPENDITURES	\$456,117,502	29%	\$377,056,011	29%
TOTAL	\$1,547,343,431	100%	\$1,293,111,760	100%

- Stabilized Year (Annual)

Stabilized Year Expenditures Summary - Scenario Comparisons

James City County Fiscal Impact Model

Category	SCENARIO			
	Scenario 1: VIRTUAL FUTURE	%	Scenario 2: ALTERNATIVE FUTURE	%
GENERAL FUND EXPENDITURES	\$25,794,512	26%	\$22,470,696	28%
TOTAL WJCC SCHOOLS OPERATING EXPENDITURES	\$55,887,139	56%	\$41,667,691	52%
OTHER FUNDS EXPENDITURES	\$1,996,377	2%	\$1,996,406	2%
CAPITAL EXPENDITURES	\$15,424,145	16%	\$14,750,084	18%
TOTAL	\$99,102,173	100%	\$80,884,877	100%

Operating Expenditures: 25-Year Cumulative Total

Cumulative Operating Expenditures Summary - Scenario Comparisons

James City County Fiscal Impact Model

Category	SCENARIO			
	Scenario 1: VIRTUAL FUTURE	%	Scenario 2: ALTERNATIVE FUTURE	%
GENERAL FUND EXPENDITURES				
GENERAL ADMINISTRATION	\$3,415,588	1%	\$3,786,032	1%
COURT SERVICES	\$5,195,903	1%	\$6,399,601	1%
PUBLIC SAFETY	\$235,788,737	35%	\$234,460,155	39%
FINANCIAL ADMINISTRATION	\$11,148,249	2%	\$11,964,204	2%
INFO RESOURCES MANAGEMENT	\$4,124,513	1%	\$4,371,984	1%
COMMUNITY DEVELOPMENT	\$7,592,622	1%	\$9,487,795	2%
GENERAL SERVICES	\$21,198,248	3%	\$24,778,468	4%
PARKS & RECREATION	\$15,946,753	2%	\$18,844,142	3%
CONTRIBUTION TO SCHOOLS*	\$334,205,092	50%	\$249,172,793	42%
OTHER CONTRIBUTIONS AND TRANSFERS TO OTHER FUNDS	\$34,329,607	5%	\$34,330,104	6%
TOTAL GENERAL FUND	\$672,945,311	100%	\$597,595,279	100%
TOTAL WJCC SCHOOLS OPERATING COSTS (all funding sources)	\$726,532,809		\$541,679,986	
OTHER FUNDS EXPENDITURES	\$25,952,902		\$25,953,278	
* Estimated County Contribution for WJCC Schools Operations (46%)				

Operating Expenditures: Stabilized Year (Annual)

Stabilized Year Operating Expenditures Summary - Scenario Comparisons

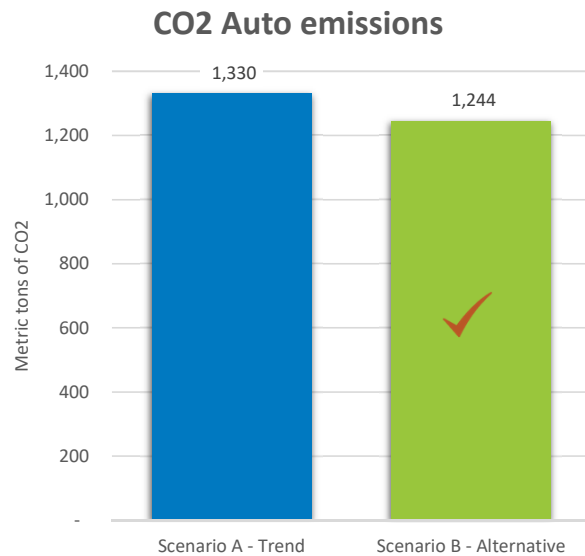
James City County Fiscal Impact Model

Category	SCENARIO			
	Scenario 1: VIRTUAL FUTURE	%	Scenario 2: ALTERNATIVE FUTURE	%
GENERAL FUND EXPENDITURES				
GENERAL ADMINISTRATION	\$278,002	1%	\$275,760	1%
COURT SERVICES	\$381,075	1%	\$393,210	1%
PUBLIC SAFETY	\$16,663,857	32%	\$12,925,255	31%
FINANCIAL ADMINISTRATION	\$1,150,149	2%	\$1,111,103	3%
INFO RESOURCES MANAGEMENT	\$338,737	1%	\$312,410	1%
COMMUNITY DEVELOPMENT	\$751,155	1%	\$888,697	2%
GENERAL SERVICES	\$2,064,823	4%	\$2,251,325	5%
PARKS & RECREATION	\$1,525,975	3%	\$1,672,158	4%
CONTRIBUTION TO SCHOOLS*	\$25,708,084	50%	\$19,167,138	46%
OTHER CONTRIBUTIONS AND TRANSFERS TO OTHER FUNDS	\$2,640,739	5%	\$2,640,777	6%
TOTAL GENERAL FUND	\$51,502,596	100%	\$41,637,834	100%
TOTAL WJCC SCHOOLS OPERATING COSTS (all funding sources)	\$55,887,139		\$41,667,691	
OTHER FUNDS EXPENDITURES	\$1,996,377		\$1,996,406	
* Estimated County Contribution for WJCC Schools Operations (46%)				

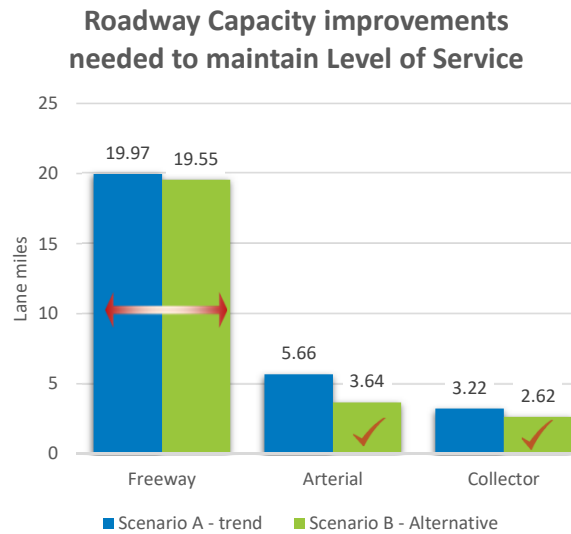
Travel Demand Model Summary

Nature & Environment

Travel Demand Model Performance Indicators



Amount of CO2 generated by the operation of vehicles



Additional roadway capacity needed to maintain Level of Service "C", by roadway type (with respect to the 2045 roadway network)

✓ Indicates scenario closer to desired results (from public input)



Indicates relatively equal scenario results

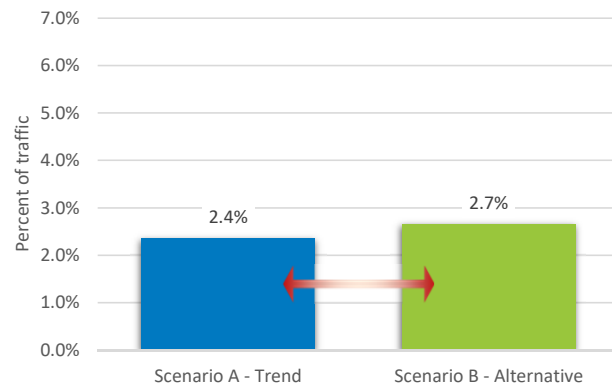


Indicates results without conclusions from public input

Community Character

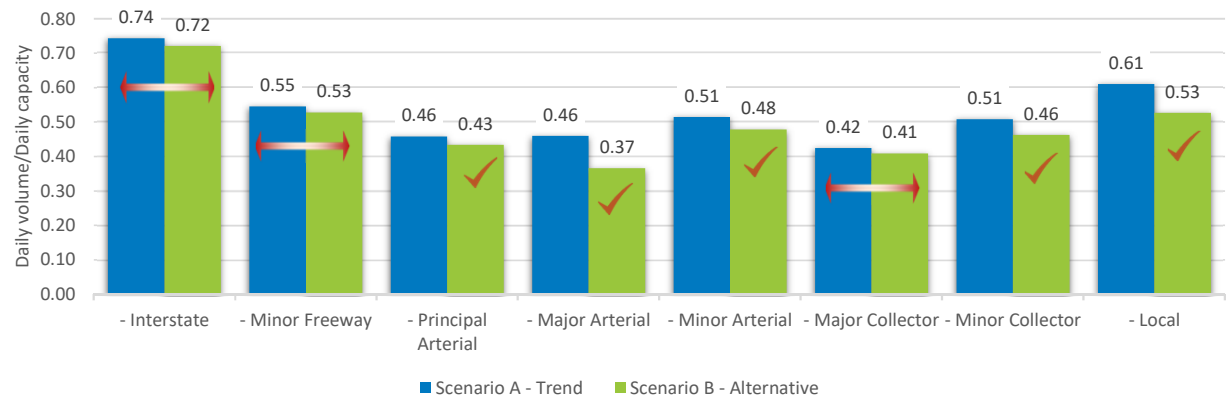
Travel Demand Model Performance Indicators

Change in percent of freight traffic on secondary streets.



Presence of truck traffic relative to total traffic on minor arterials, collectors, and local roads

Change in average level-of-service by roadway type



Level-of-service expressed as the ratio of daily volume-to-daily capacity for roadways in James City County

✓ Indicates scenario closer to desired results (from public input)



Indicates relatively equal scenario results

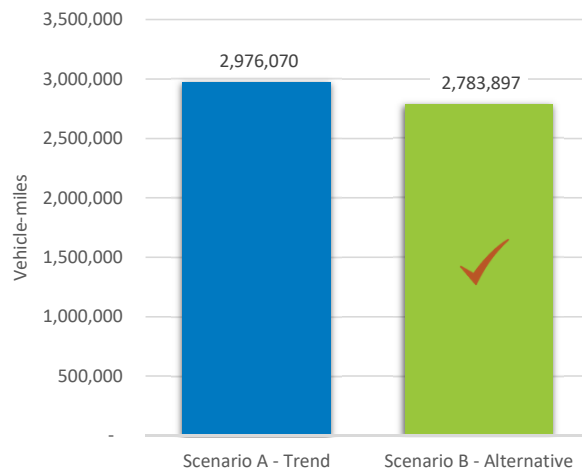


Indicates results without conclusions from public input

Economic Development

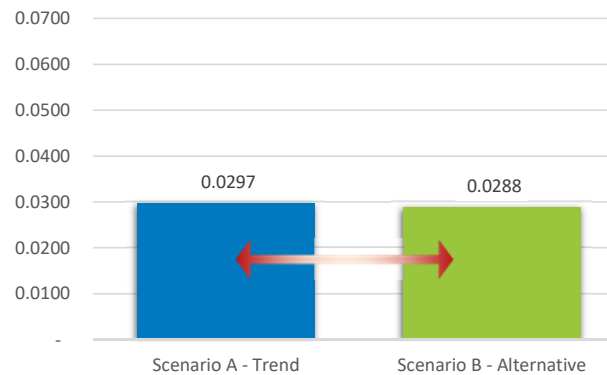
Travel Demand Model Performance Indicators

Vehicle Miles Traveled



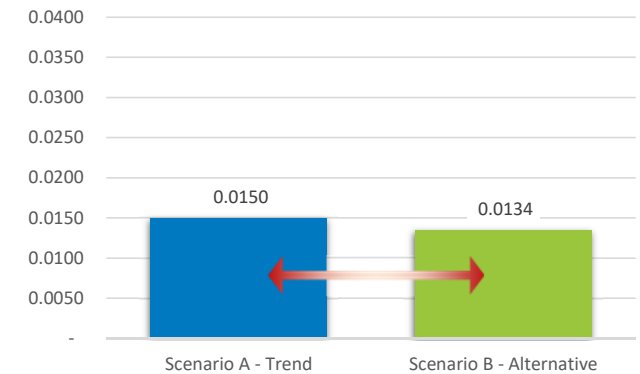
Combination of volume and distance traveled on roadways in James City County

Accessibility to high density employment areas



Relative ability to travel to high density employment areas from within the region. Measured by a dimensionless index.

Accessibility to major tourist attractions



Relative ability to travel to major tourist attractions from within the region. Measured by a dimensionless index.

✓ Indicates scenario closer to desired results (from public input)

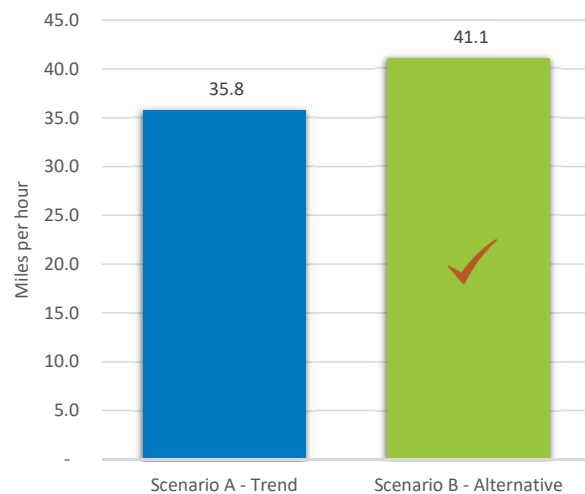
↔ Indicates relatively equal scenario results

--- Indicates results without conclusions from public input

Quality of Life

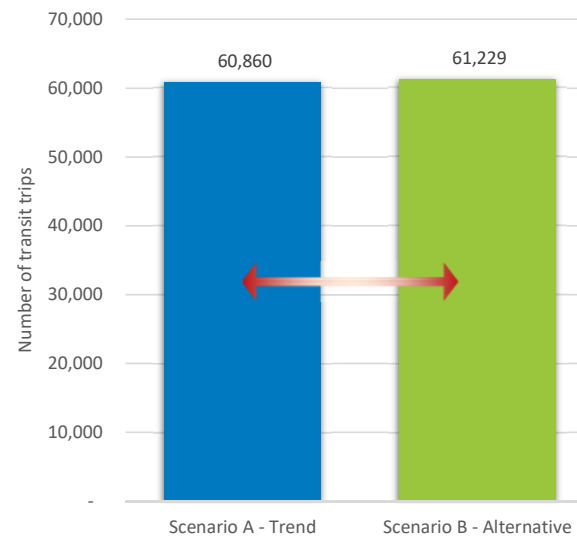
Travel Demand Model Performance Indicators

Average Speed of the transit-serving roadway network



Speed of transit –serving network in miles per hour

Change in Transit Ridership.



Ridership within James City County

✓ Indicates scenario closer to desired results (from public input)

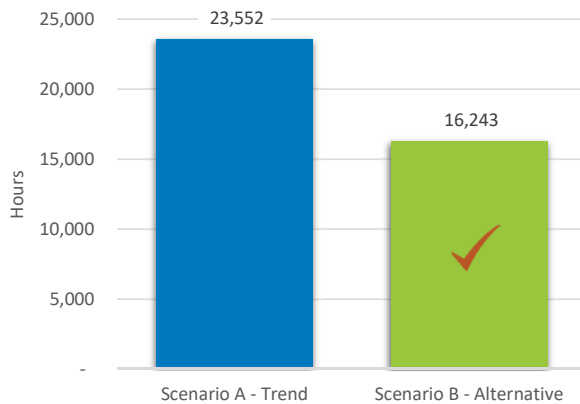
↔ Indicates relatively equal scenario results

--- Indicates results without conclusions from public input

Quality of Life

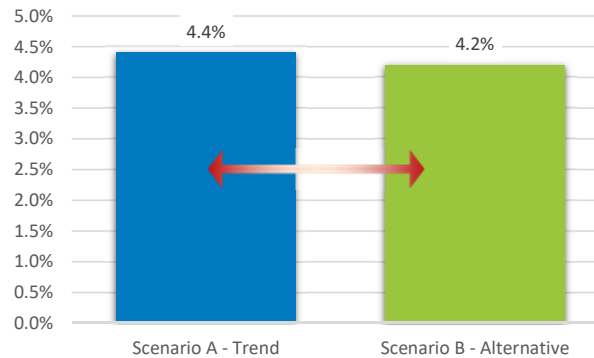
Travel Demand Model Performance Indicators

Change in countywide delay



The difference between congested and uncongested travel times

Reliability of identified priority routes



The predictability of travel times, expressed as the buffer time or additional time needed to ensure on-time arrival. Expressed as a percentage of the actual travel time. Priority routes defined as interstate/freeway and principal arterials.

✓ Indicates scenario closer to desired results (from public input)



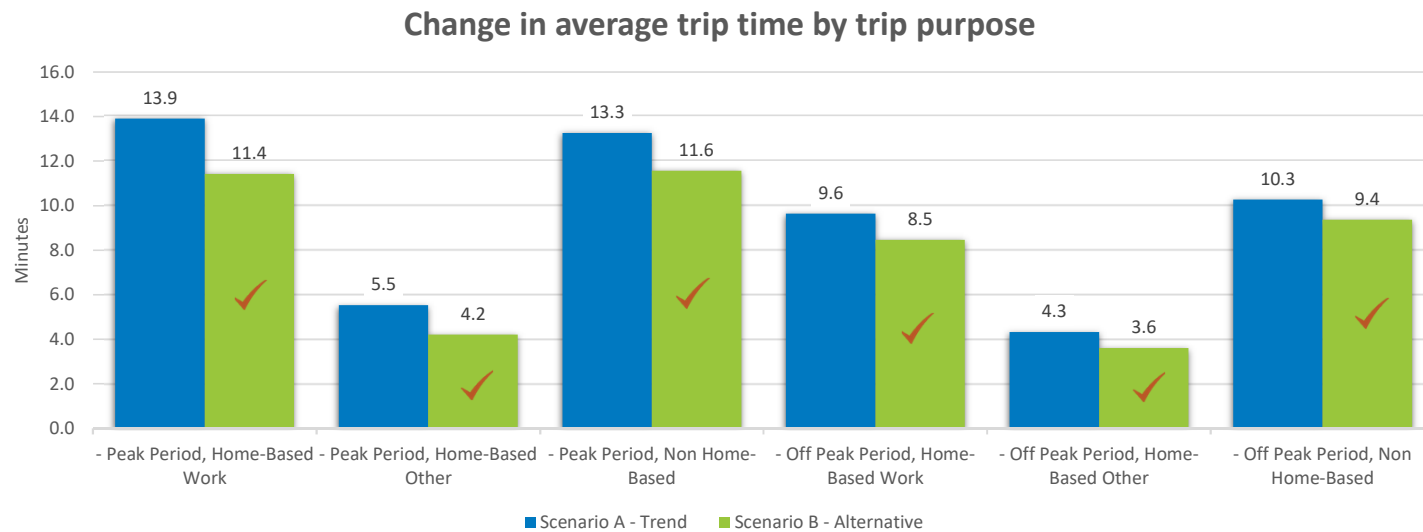
Indicates relatively equal scenario results



Indicates results without conclusions from public input

Quality of Life

Travel Demand Model Performance Indicators



Trips internal to James City County.

✓ Indicates scenario closer to desired results (from public input)



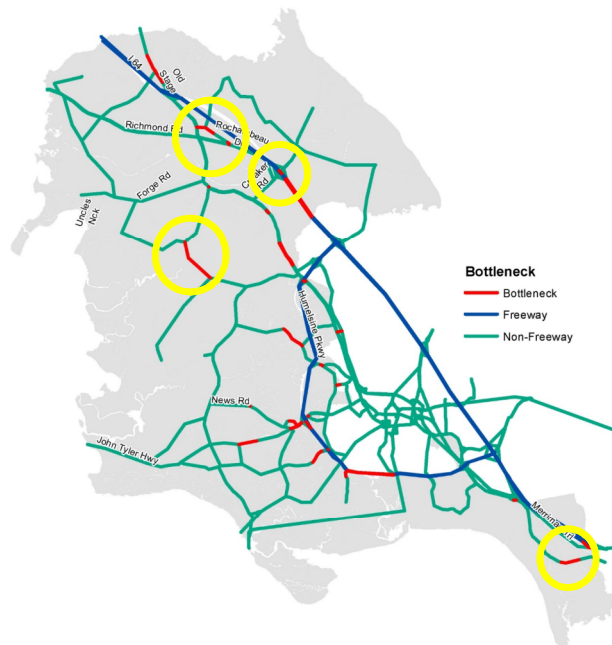
Indicates relatively equal scenario results



Indicates results without conclusions from public input

Quality of Life

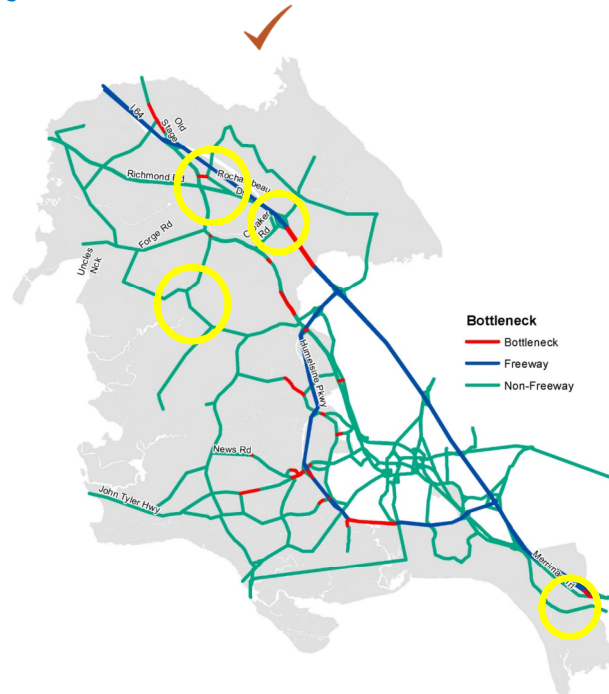
Travel Demand Model Performance Indicators



Engage2045 Land Use Model DRAFT Mapping

Bottlenecks in Scenario A - Trend

6/26/2020



Engage2045 Land Use Model DRAFT Mapping

Bottlenecks in Scenario B - Alternative

6/26/2020

Congestion hot-spots, such as lane reductions or locations in general where demand approaches or exceeds capacity. Priority routes defined as interstate/freeway and principal arterials. Note that these are for Average Daily Traffic. Hot spots could be considerably more extensive at peak period.

✓ Indicates scenario closer to desired results (from public input)

↔ Indicates relatively equal scenario results

--- Indicates results without conclusions from public input

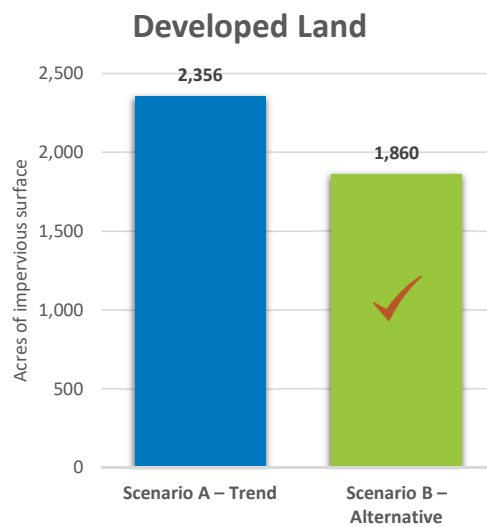
Findings

- Scenario B has lower Vehicle Miles Traveled and exhibits less congestion and shorter travel times as a whole over Scenario A
- Congestion bottlenecks are similar for both scenarios with respect to Average Daily Traffic. However, the results may be more significant in the Peak Period
- Accessibility to employment is relatively similar in both scenarios
- Transit ridership is similar in both scenarios but the transit-serving network performs better in Scenario B
- In general, the level of service and need for capacity improvements perform better in Scenario B

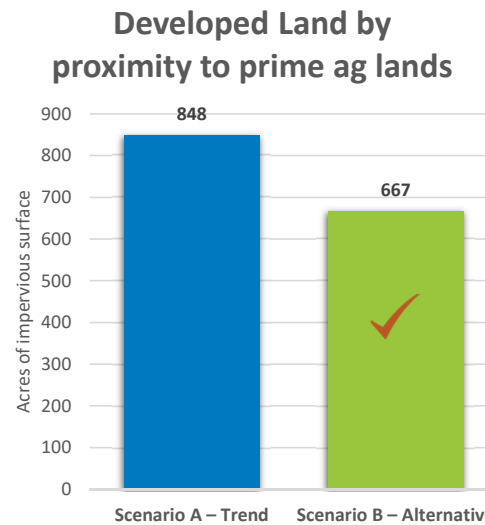
Land Use Model Summary

Nature & Environment

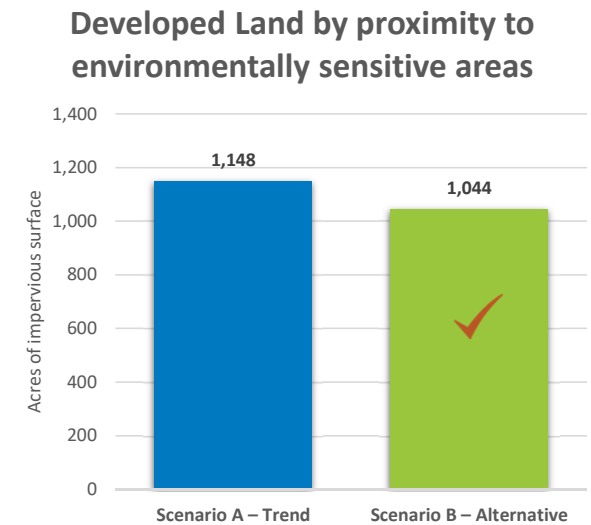
Land Use Model Performance Indicators



Total impervious surface area



Total impervious surface area on parcels mostly covering prime ag soils



Total impervious surface area on parcels with more than 10% no build features

✓ Indicates scenario closer to desired results (from public input)



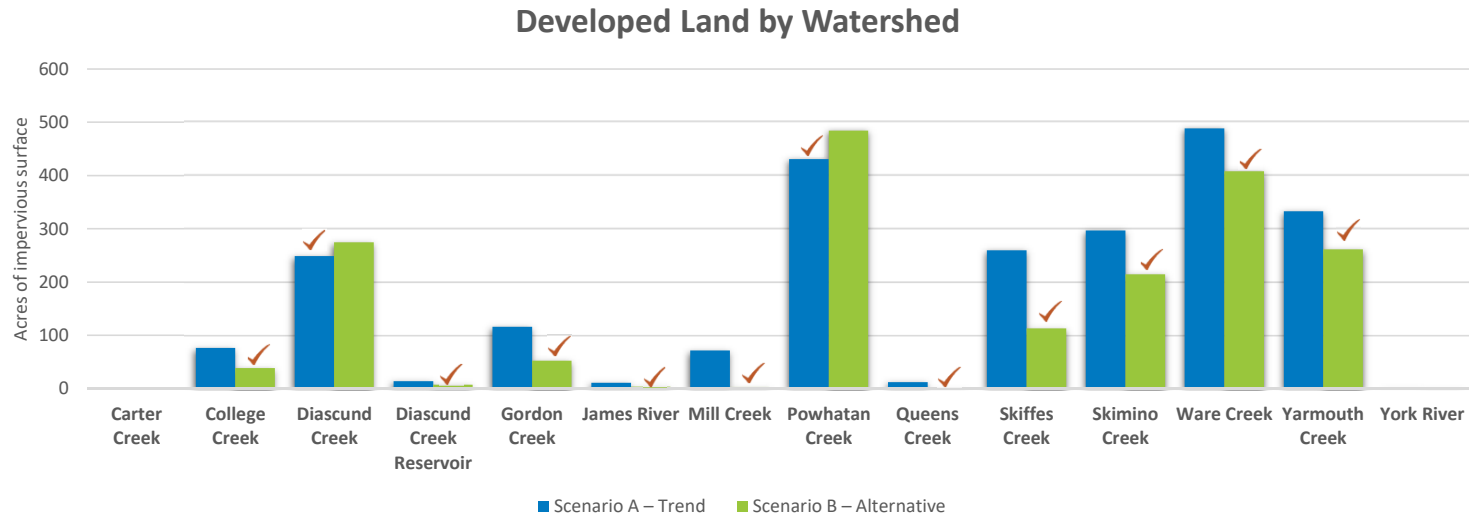
Indicates relatively equal scenario results



Indicates results without conclusions from public input

Nature & Environment

Land Use Model Performance Indicators



Total impervious surface area by watershed

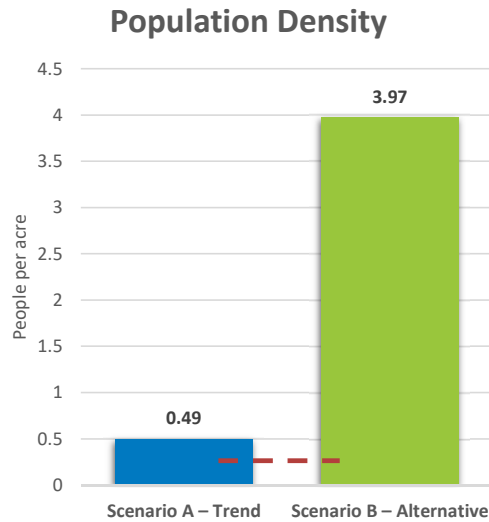
✓ Indicates scenario closer to desired results (from public input)

↔ Indicates relatively equal scenario results

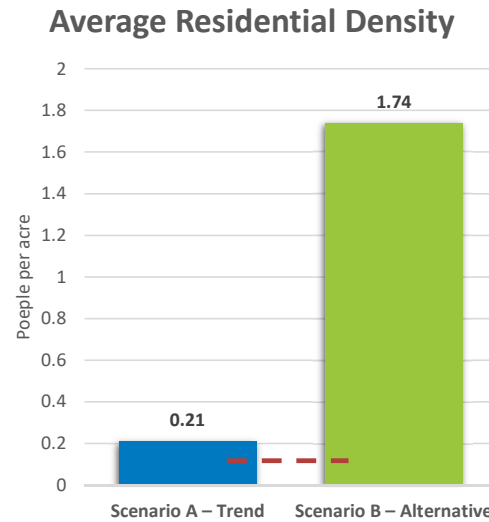
--- Indicates results without conclusions from public input

Community Character

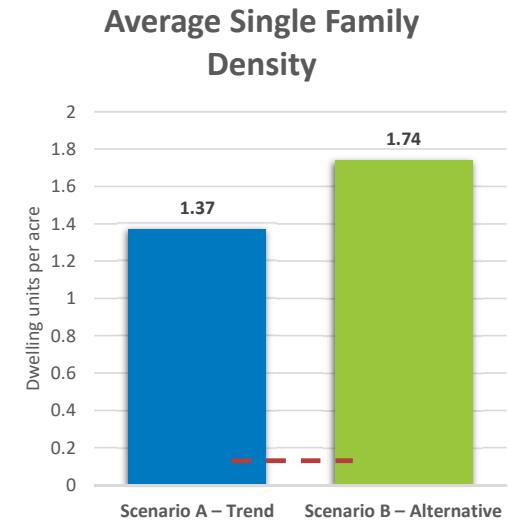
Land Use Model Performance Indicators



Total population on parcels/parcel area



Total dwelling units on parcels/parcels area



Total single family dwelling units on parcels/parcels area

✓ Indicates scenario closer to desired results (from public input)



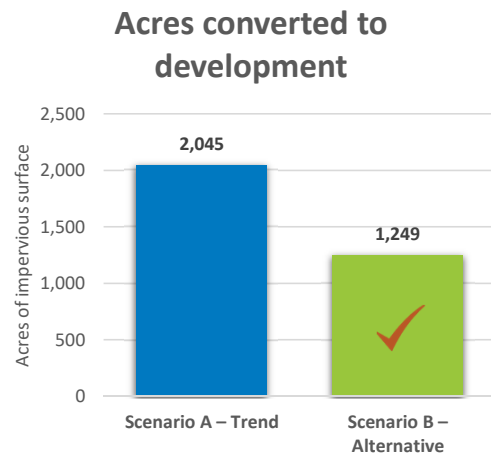
Indicates relatively equal scenario results



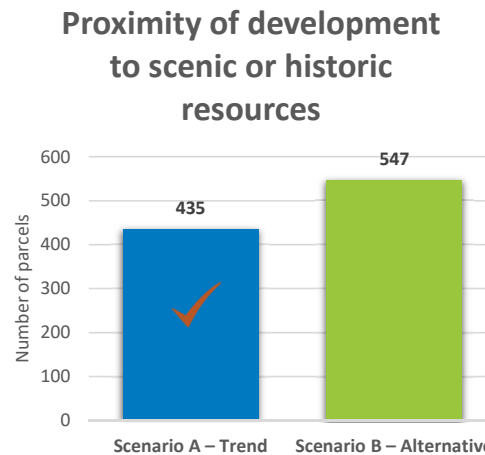
Indicates results without conclusions from public input

Community Character

Land Use Model Performance Indicators



Total impervious surface area on previously vacant land



Total number of parcels with employment or population growth in areas with structures Listed as National Historic Landmarks or Listed on, contributing to, or eligible for listing on the National Register of Historic Places/Virginia Landmarks Register per the Cultural Resource Preservation Index

✓ Indicates scenario closer to desired results (from public input)



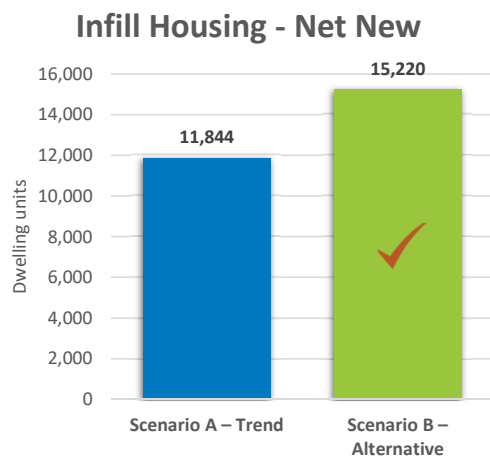
Indicates relatively equal scenario results



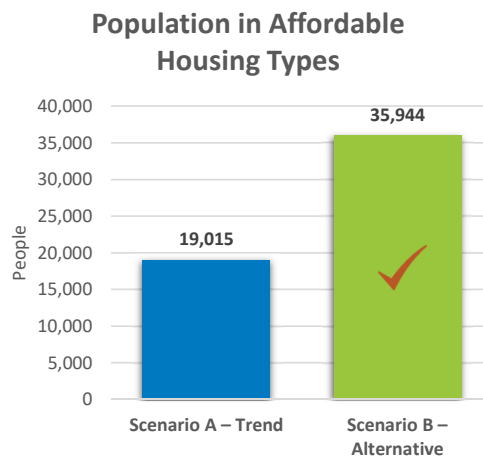
Indicates results without conclusions from public input

Affordable Housing

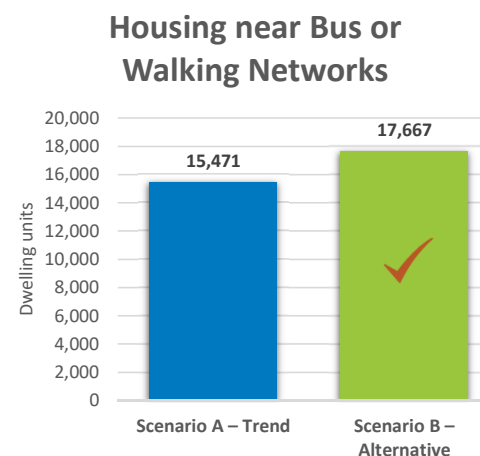
Land Use Model Performance Indicators



Total dwelling units added to parcels considered developed



Total population in multifamily and single-family attached housing



Total dwelling units on parcels within 1/4 mile of at bus stops or sidewalks

✓ Indicates scenario closer to desired results (from public input)



Indicates relatively equal scenario results

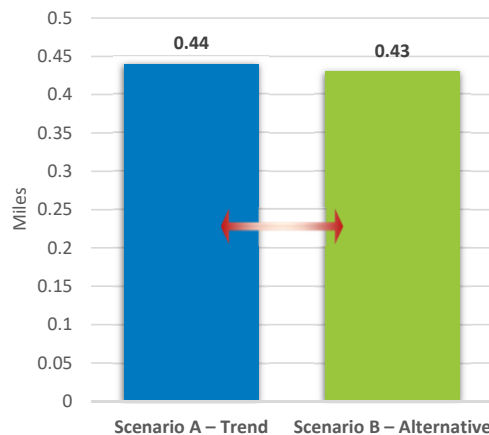


Indicates results without conclusions from public input

Economic Development

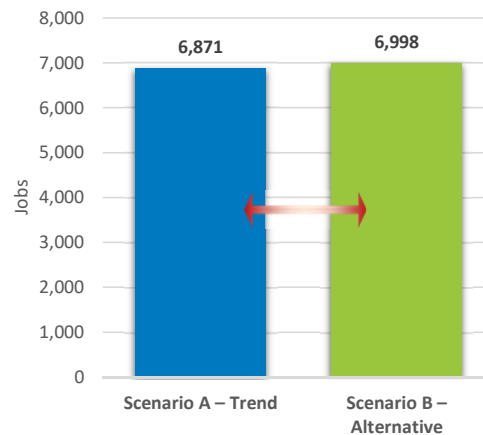
Land Use Model Performance Indicators

Distance to Transit - Jobs



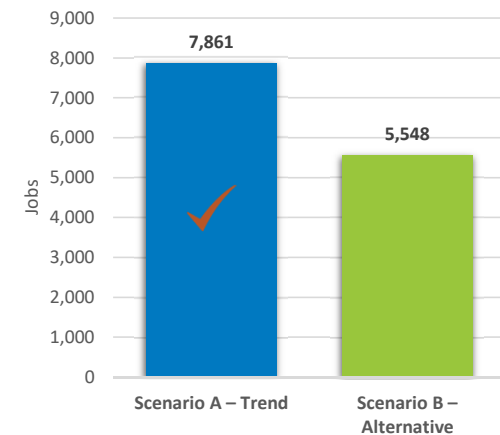
Average distance from parcels with jobs to nearest transit stops, weighted by job density in each parcel

Jobs near Transit



Total jobs on parcels within 1/4 mile of transit stops

Jobs near Points of Interest



Total jobs on parcels within 1/4 miles of points of interest

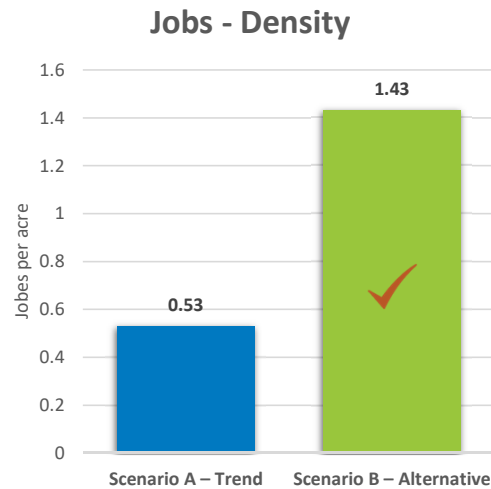
✓ Indicates scenario closer to desired results (from public input)

↔ Indicates relatively equal scenario results

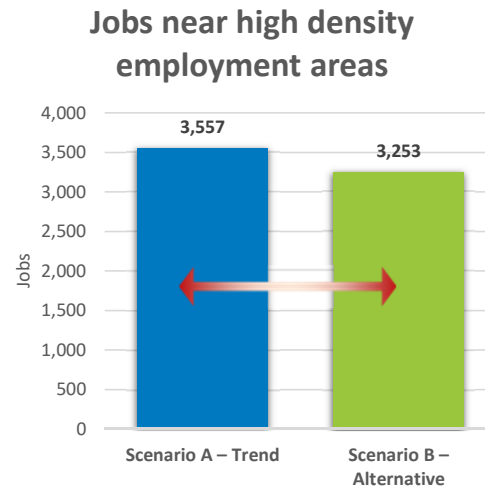
- - - Indicates results without conclusions from public input

Economic Development

Land Use Model Performance Indicators



Total jobs on parcels/parcel area



Total jobs on parcels within walkable distance of existing employment centers

✓ Indicates scenario closer to desired results (from public input)

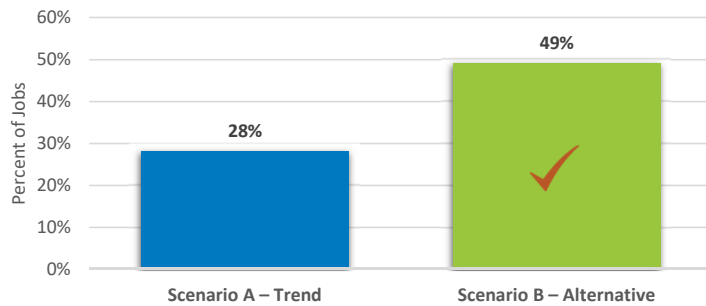
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Economic Development

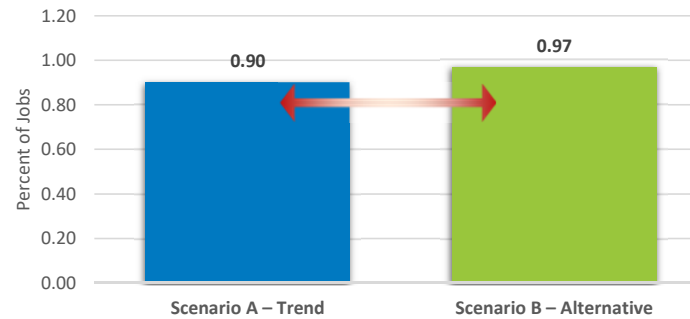
Land Use Model Performance Indicators

Percent of jobs in mixed use place types



Total jobs on parcels within defined Mixed-Use
Commercial/Residential and Mixed-Use
Industrial/Residential

Distance to Employment Centers



Average distance of parcels with jobs to
existing employment centers

✓ Indicates scenario closer to desired results (from public input)

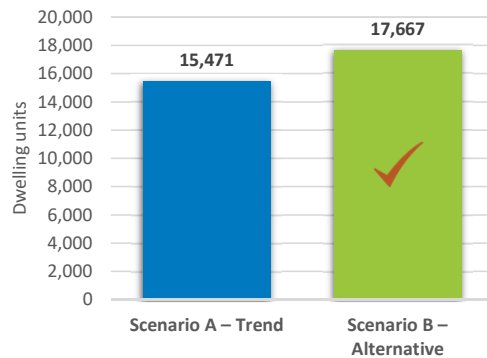
↔ Indicates relatively equal scenario results

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Quality of Life

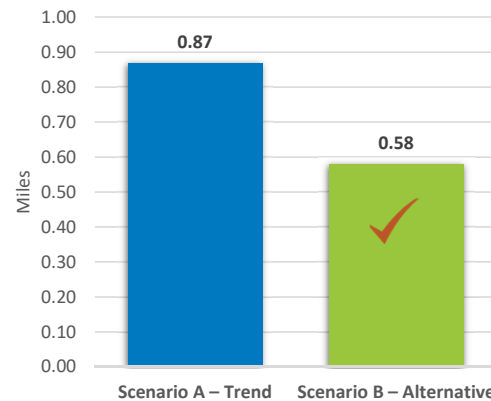
Land Use Model Performance Indicators

Housing near Bus or Walking Networks



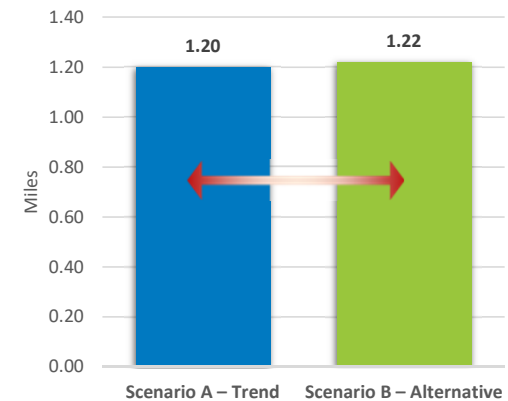
Total dwelling units on parcels within 1/4 mile of at bus stops or sidewalks

Distance to Transit



Average distance from residential parcels to nearest transit stops, weighted by job density in each parcel

Distance to Parks



Average distance from residential parcels to nearest park



Indicates scenario closer to desired results (from public input)



Indicates relatively equal scenario results

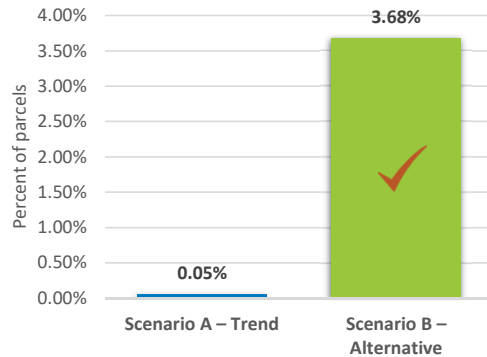


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Quality of Life

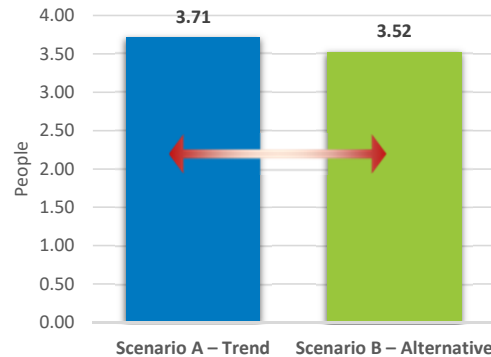
Land Use Model Performance Indicators

Potential for walk access to future school sites



Percent of parcels with greater than 10 DUA

Population within walking distance of schools



Avg distance from residential parcels to school facilities



Indicates scenario closer to desired results (from public input)



Indicates relatively equal scenario results



Indicates results without conclusions from public input

Findings

- Scenario B exhibits denser population and employment development patterns and more mixed use than Scenario A
- The more compact development pattern of B also means that less acres of undeveloped land will be converted to development than in A, meaning greater protection from development for environmental and agricultural resources.
- Another result of the compactness of Scenario B is increased options for affordable housing
- The more compact pattern of Scenario B also means that not as many residents may be as close to existing amenities and points of interest. However, the compactness of B allows future amenities to be sited more efficiently

Summary Conclusions (from Planning Team)

1. Scenario B has more results that conform to the public input received in the Fall for a preferred vision/direction for the County
2. Scenario A has a higher value of revenues to costs in 25 years although both scenarios have a positive fiscal result
3. The growth in Scenario B is geared more toward higher density housing and mixed-use development than in Scenario A
4. Scenario B has generally better environmental protection, affordable housing feasibility and less traffic impacts than Scenario A
5. Both Scenarios have relatively equal access to existing facilities/amenities in the County. However, the more compact growth pattern of B may allow future facilities/amenities to be located more efficiently

What we need from you:

- Guidance/affirmation from the PCWG on the process – specifically proceeding with the public Assembly on August 10th
- Affirmation of the MetroQuest survey and the Goals Survey
- Any other guidance on what questions we want to ask the public this summer

NEXT STEPS

July 15th & 27th:

CPT meetings to review materials and “dry run” the Assembly

August 10th:

Assembly webinar to kick off public input

Surveys run for 3 weeks to receive input

After August:

Affirm preferred Scenario and begin to draft Comp Plan Elements

The Process

